

and limiting the disclosure to these compounds, the number of permutations and combinations runs well into the hundreds of millions, if not trillions, of possibilities.

Moreover, this huge number of combinations is realized before taking into account the fact that, as acknowledged in the Office Action, the ranges disclosed by Stark are not limited to the claimed ranges but include other values. The import of this fact is that it is just as easy to select numerous amounts of individual components which are outside the claims as are inside the claims, and that necessarily results in the number of possibilities encompassed by Stark increasing well into the trillions. It would be serendipity to simultaneously select all of the reactants and the equivalent ratios specified in the claims under consideration. Both as to the reactants and equivalent ratios, Stark provides no guidance which would lead a person skilled in the art to the proper ratios. The citation to MPEP 2144.05 and case law in paragraph 6 of the Office Action is respectfully submitted not to be on point as they deal with situations where the range was the only difference from the prior art and not, as here, they are one of many parameters and increase the number of choices which are required.

The observation by the Federal Circuit that "a disclosure of millions of compounds does not render a claim to three compounds obvious, particularly when that disclosure indicates a preference leading away from the claimed compounds", *In re Baird*, 29 USPQ2d 1550, 1552 (Fed. Cir. 1994). is apropos here. If 3 out of millions of combinations is not obvious, 3 out of trillions of possibilities is even less obvious. In that situation, there must be some guidance in the reference (or elsewhere) which would lead one skilled in the art to what is, quite literally, "one in a million". But there is none here.

Given that the number of combinations and permutations falling within the scope of the Stark disclosure is immense, it constitutes, at the very best, a shotgun disclosure. The Board of Appeals has observed that "the likelihood of producing a composition such as here claimed from a disclosure such as shown by the ...patent [disclosing a very great number of permutations] would be about the same as the likelihood as discovering the combination of a safe from a mere inspection of the dials thereof." *Ex parte Garvey*, 41 USPQ 583, 584 (emphasis by the Board), quoted with approval in *In re Luvisi*, 144 USPQ 646 (CCPA 1965). A shotgun disclosure does not guide the skilled person to a specific composition so as to make that composition obvious, *Ex parte Strobel*, 160 USPQ 352 (Bd. App. 1968), *In re Baird*, 29 USPQ at 1552 (3 in millions of possibilities compounds is not obvious). The rule that the ability to reconstruct a composition without guidance or a reason to make selections is inadequate under Section 103, *Ex parte Levingood*, 28 USPQ2d 1300 (BPAI 1993), applies with even more force when a shotgun disclosure is involved.

The Federal Circuit has recently reiterated that it does not constitute obviousness "to vary all parameters or try each of numerous possible choices until one possibly arrived at a successful result, where the prior art gave no indication of which parameters were critical or no direction as to which of the many possible choices is likely to be successful." *Bayer Schering Pharma AB v. Barr Laboratories, Inc.*, Slip. Op. at 9 (August 5, 2009) and *PharmaStem Therapeutics v. ViaCell Inc.*, 83 USPQ2d 1289, 1305 (Fed. Cir. 2007) (both quoting from *In re O'Farrell*, 7 USPQ2d 1673 (Fed. Cir. 1988) which "provides useful

guidance for determining whether the expectation of success from a particular line of inquiry is great enough to render a resulting invention obvious." 83 USPQ2d at 1305).

Where there is only a small, finite number of possibilities, a combination may be obvious. However, review of precedent indicates that what is meant by a "finite" number of possibilities is at most on the order of a few hundred. But that pales in contrast to the number involved here, which is far into the trillions.

The Final Rejection attempts in paragraphs 26-28 to lower the number of possibilities. It is asserted that Stark indicates a preference for 12 out of 15 silicon compounds (applicants count 16 in the list referenced) for component b, but that selective view ignores, for no stated reason, the other 7 possibilities for this component in [0028]-[0029]. As to components c and d, it is asserted that Stark indicates a preference for 5 and 6 possibilities, respectively, with the first listed compound in each falling within the claims and making it "very likely" to be chosen. But if that were a valid contention, Stark would have "very likely" chosen to use those materials in at least one of the 26 working examples, but chose to use neither one of those "very likely" materials. This makes it clear that this contention is just an attempt at an after-the-fact speculative justification. Moreover, both the possible selections for the base component a and the amounts of each component have not been taken into consideration even under this hypothetical approach advanced in the Final Rejection. Even under this hindsight reinterpretation of Stark, the number of possibilities still numbers well into the millions.

Beyond the foregoing, Stark is based on free radical polymerization chemistry in which the unsaturation in the monomers is employed as sites of connection between materials to realize a solid. In contrast, the invention is based on Michael addition

chemistry in which a donor acidic site (C-H) is added to an excess of unsaturation so as to leave unsaturation capable of subsequent cure in the product. The monofunctional material is used in the invention to limit network growth of the reaction of difunctional donors (CH<sub>2</sub>) with multifunctional acceptors (COCH=CH<sub>2</sub>) in the Michael addition. This avoids the problems encountered in the prior art Michael addition of difunctional donors to multifunctional acceptors described in the application. The identity of the reactants and their amounts establish this result, even if the claims do not use the term Michael addition reaction product. Nothing in Stark suggests this approach or the product which results from it. For example, no Stark example combines a Michael donor with a Michael acceptor; all of Stark's examples require free radicals to initiate polymerization, and without such radicals, there would be no reaction even if a small amount of a base catalyst was added. This factor is not only applicable to Stark alone but is particularly relevant to the combination with Moy. While the Office Action points out that Moy has been cited to show the concept of Michael catalysts, curing conditions and parameters, and uses of such cured products, there still must be a reason to substitute such concepts in the Stark procedure which is premised on a totally different type of chemistry and then make the alterations of the Stark procedure based on such concepts. Observing that a Michael addition is a base-catalyzed reaction, and that sodium acetate and alkyl sulfonates are bases (Office Action paragraph 33) does not provide that reason since catalysts do not take part in a reaction while here, sodium acetate and alkyl sulfonates are reactants.

Moy has not been cited to eliminate any of the deficiencies in Stark other than those relating to Michael addition. Accordingly, the Stark deficiencies discussed above remain and the reference cannot render the instant claims obvious.

In view of the above remarks, applicant believes the pending application is in condition for allowance.

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Respectfully submitted,

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